DNV·GL

Certificate No:
TAK00000GT

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Plastic Pipes, Thermoplastic

with type designation(s)
NIRON FIBER BLUE PP-RP PIPE WITH FIBER GLASS,
NIRON PP-RCT FITTINGS,
NIRON PP-R FITTINGS

Issued to
NUPI INDUSTRIE ITALIANE SPA
BUSTO ARSIZIO VA, Italy

is found to comply with
DNV GL class programme DNVGL-CP-0072 – Type approval – Thermoplastic piping systems

Application :

For use in essential and non-essential piping systems for water and seawater up to 16 (20) and 20 (25) bar. Service temperature range 0°C to 70°C (95°C for shorter periods). For installation in accordance with DNV GL Rules and Manufacturer's Specification. The piping system is tested to Low Flame Spread characteristics according to ASTM D635. The piping system is not tested w.r.t. Fire Endurance characteristics.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2021-11-21**.

Issued at **Høvik** on **2016-11-22**

for **DNV GL**

DNV GL local station: **Milan**

Approval Engineer: **Gisle Hersvik**

Martin Strande
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Job Id:
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Product description

NIRON FIBER BLUE PP-RP PIPE WITH FIBER GLASS SDR9 (PN20) and NIRON FITTINGS (PP-R & PP-RCT).

- Refer to Nupi's Catalogue; PP Catalog – Multilayer pipes
- In conformity with standards UNI EN ISO 15874, DIN 8077, DIN 8078, CSA B 137.11, ASTM F2389
- Polypropylene Random-Copolymer (PP-R)
- Nominal Internal Pressure rating (NUPI): 20 / 25 bar at 20ºC for a life time of 50 years.
- Nominal Internal Pressure rating (IMO*): 16 / 20 bar.
  * IMO=IMO Resolution A.753(18); Downrated due to internal burst pressure testing.
- External Pressure rating: 14 bar

Pipes:

Nominal diameter, DN [mm]	Wall thickness, min. [mm]	
	Standard Size Ratio, SDR	
	SDR9	**SDR7.4**
	Pipe Series, S	
	4	**3,2**
	Nominal Pressure, PN [bar]	
	PN20 (16)	**PN25 (20)**
20	-	2.8
25	-	3.5
32	3.6	-
40	4.5	-
50	5.6	-
63	7.1	-
75	8.4	-
90	10.1	-
110	12.3	-
125	14.0	-
160	17,9	-
200	22.4	-
250	27.9	-

NIRON Fittings:
Elbows, tees, reducers, couplers, end caps, stub ends, transitions (swivel/threaded).

Joining techniques:
Socket fusion, electrofusion and butt fusion.

Manufactured by

Castel Guelfo Plant; Via Dell'Artigianato 13, 40023, Castel Guelfo (BO), Italy [Pipes]

Busto Arsizio Plant; Via Stefano Faerrario 8, Z.I. Sud-Ovest – 21052 Busto Arsizio (VA), Italy [Fittings]

DNV GL local station: Milan

Responsibility

The Company (stated on the front page of this Certificate) takes the responsibility that both design and production are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate.

Application/Limitation

The approval covers application such as essential and non-essential system and cold water systems;

- Hot and cold potable water, sanitary discharge, hot water heating, drains (internal) and other systems according to DNV GL Rules for Ships, arranged within accommodation-, service- and control spaces, cofferdams, void spaces, seawater tanks, pipe tunnels, ducts and on open decks as well as other locations where Fire Endurance testing according to the IMO Resolution A.753(18) is not required.
- Within accommodation-, service- and control spaces the piping systems are to be installed behind B-class or fully closed C-classed ceilings and linings. In case no ceiling or lining is existing the piping systems are to be provided with an approved fire insulation.

For installation in accordance with DNV GL Rules and Manufacturer's Specification.

Maximum service pressure; 16 (20) and 20 (25) bar. Ref. above table w.r.t. dimensions.

Service temperature range; 0ºC to 70ºC. For shorter periods up to 95ºC.

The piping system is tested to Low Flame Spread characteristics in accordance with ASTM D635:06.

The piping system is not tested with respect to fire endurance, smoke and toxicity characteristics.

The piping system is non-conductive, not for installation in gas hazardous area.

For application on passenger vessels additional requierements specified in the Rules and Regulations of the appropriate flag state authority may have to be observed.

When plastic pipes pass through watertight bulkheads or decks, the watertight integrity of the bulkhead or deck is to be maintained by fitting remotely operated shut-off valves at bulkhead and deck penetrations. These valves shall be operable from above the freeboard deck.

On passenger vessel where the wathertight bulkhead is also a fire division the requierements of SOLAS Ch.II-1, Regulation 13.2.3. are to be observed.

Type Approval documentation
Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**.

Marking of product

The product is to be marked with the *manufacturer's name* and address, *dimensions*, *SDR rating, batch no.* and *material designation*.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV GL Type Approval Certificate.

Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Periodical Assessment to be performed after 2 and 3.5 years (Certificate Retention) and at renewal after 5 years (Certificate Renewal).

The main elements of the Periodical Assessment are to:

- Ensure that **Type Approval documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and DNV GL Type Approval Certificate.

END OF CERTIFICATE